Wisdom as an Outcome of Critical Thinking in the School Curriculum

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Abstract

This article considers a way of enacting critical thinking in the school curriculum. An alternative to adopting a formal framework of critical thinking which may not be exhaustive or include desirable components, involves working towards the generation of wisdom—defined as the quality of having the experience, knowledge and insight to think and act aptly in a specific context for a particular purpose—as a way for learners to make meanings that potentially have personal and social significance. The article uses a real-world example to illustrate how critical thinking can be driven by inquiry and underpinned by explanation to demonstrate practical knowledge and understanding in specific circumstances.

Keywords: wisdom, critical thinking, curriculum, instruction, task design, classroom practice

Wisdom as an Outcome of Critical Thinking in the School Curriculum

This article considers a way of enacting critical thinking in the school curriculum. When researchers, education policymakers and schools include critical thinking as a key 21st Century competency (Framework for 21st century learning, 2015) teachers need to incorporate this requirement into the coverage of curriculum content. As I attempt to illustrate below, one possibility with significance for both individuals and social groups involves an openness and willingness to use inquiry and explanation as the means of demonstrating understanding in particular contexts and specific circumstances.

Critical Thinking

Definitionally, critical thinking is the ability to think clearly and rationally, and embraces a variety of skill sets including problem solving, logic, evaluation and reflection. Operationally, a starting point is to identify and situate the various components of thinking against the background of desired intellectual standards (Foundation for Critical Thinking, 2015).

For the purposes of illustration, a typical framework for reasoning and intellectual standards is Richard Paul and Linda Elder's (2009) *Elements of Reasoning,* where critical thinking is defined as, "... the art of analysing and evaluating thinking with a view to

Table 1.
The components of Paul and Elder's framework for critical thinking

Intellectual Standards	Intellectual Traits	Elements of Reasoning
● Accuracy ● Clarity ● Relevance ● Logical sufficiency ● Precision ● Depth ● Significance ● Fairness ● Breadth	● Humility ● Autonomy ● Fair-mindedness ● Courage ● Perseverance ● Empathy ● Integrity ● Confidence in reason	● Purposes ● Questions ● Points of view ● Information ● Inferences ● Concepts ● Implications ● Assumptions

improving it" (p. 2). In brief, there are three components to the Paul-Elder model as shown in Table 1: (i) Intellectual Standards, (ii) Intellectual Traits, and (iii) Elements of Reasoning.

It is important to know and understand that in the Paul-Elder model for critical thinking, the intellectual standards must be applied to the elements of reasoning which, in turn, lead to the development of the intellectual traits. Paul and Elder advocate that the regular and consistent operation of their framework produces 'well-cultivated' critical thinkers, who are able to raise vital questions and problems, gather and assess information, reach well-reasoned conclusions and solutions, think open-mindedly and communicate effectively.

Theoretically, the Paul-Elder process approach to reasoning and critical thinking would seem to cover a wide range of possibilities. But the question of whether models of this kind are effective and practical mechanisms is, I suggest, moot. This is because we cannot be sure the taxonomies are exhaustive or indeed desirable. Nor is it clear how such elements interact specifically to improve thinking for *particular individuals and specialised purposes.* Thus, given this uncertainty, teachers may argue that they do not need a formal model of critical thinking to teach their curriculum content. While I remain neutral concerning the usefulness of critical thinking models (including Paul and Elder's conceptualisations) *per se*, I want to explore a different way of translating critical thought into practical action by setting the generation of wisdom as a situated curricula outcome. My purpose is to show that critical thinking is not just a set of abstract notions but has real-world consequences for both individuals and groups in society. To make this case, I recount a story to set the scene.

The Two Woodcutters[1]

One day, two woodcutters, Sam and Fred, decided to compete against each other to see who could cut down the most trees in a day. Both men went to different locations in the

[1] The story is taken from Alan S. L. Wong (Parable of The Two Woodcutters, 2005)

forest but they could still hear each other clearly. After about an hour, Sam stopped chopping. Fred was puzzled but he pressed on regardless. After about five minutes, Sam's axe was back in action but within an hour it fell silent again. This pattern continued for the remainder of the day much to Fred's delight. He was bound to win, he thought. At the end of a busy day, both men stopped and looked at each other's piles of wood. Fred was disappointed to see he hadn't done as well as Sam. "How can this be?", he asked. "I never stopped once but you (pointing to Sam accusingly) kept taking a break". "Yes, that's true", Sam replied. "But the reason I stopped was to sharpen my axe".

Traditionally, the moral of this story is a simple one: Small investments in effort and preparation can have big rewards. The time we spend equipping can make a large and significant difference in our work and lives. I agree with this lesson but I would also like to suggest there are three other take-aways from the story with particular relevance to the nature and outcomes of critical thinking. To do this, we need to imagine we know a little more about Sam and his thinking.

First, the story of the two woodcutters illustrates the *value of experience.* Anyone who has tried to cut down a tree with an axe will know it is extremely hard work. In particular, it takes confidence, strength, stamina and a great deal of technique to swing an axe well. We can only learn these things through practice.

Second, the story shows the *value of knowledge.* Sam probably knew a dull blade is inefficient and ineffective. While it is certainly possible, it is extremely tiring to cut wood with a blunt axe.

Finally, and most importantly, there is a lesson in the *value of wisdom.* Combining his knowledge and experience, Sam was *wise* enough to act by sharpening his tool regularly to keep it at its optimal performance level even though this took time away from chopping. In short, he understood what he needed to enact in order to win the day convincingly and

knowingly. The implication is that his wisdom had personal significance and is something we can account for and potentially learn from.

On these bases, I tentatively define wisdom as the quality of having the experience, knowledge and insight to think and act aptly in a specific context for a particular purpose. Arguably, Sam may have been both clever and logical in his thinking but his wisdom allowed him to manifest and transform his 'critical head knowledge' into understanding and successful hands-on activity.

Moving from the fictional realm, how is the same outcome possible in a school setting? The first step, I suggest, is for teachers to be intentional in their learning task designs.

Intentional Learning Task Design

I propose that intentional learning task design is a mechanism to actualise wisdom as I have defined it. But for this to occur, an essential prerequisite is an awareness of the characteristics of instructional task types. This is because different task designs can be more or less apt for different learning objectives and we need to know, as educators, what our parameters are so that we can choose appropriately within and across our curricula options. In brief, there are four basic task forms to consider and choose from (cf. Towndrow, 2007; Towndrow & Vallance, 2004):

1. Single output, single strategy. This is where there is a single known or acceptable answer to a question or problem and there is only one way to reach it. For example, find the length of the unknown side of a right-angled triangle. Tasks of this kind are necessary but they are not particularly flexible.
2. Single output, multiple strategies. This is where there is a single objective, but there is more than one way of achieving it. For example, lose 25 kilograms in 6 months. Tasks of this kind are slightly more open.

3. Multiple outputs, single strategy. For example, using a data set derived from standard formulas and accepted procedures, produce tables, graphs and charts as necessary. Tasks of this kind are moderately open.
4. Multiple outputs, multiple strategies. For example, invent: Devise and carry out a solution for X (where X is any problem or issue you have chosen to explore). Tasks of this kind are the most flexible in terms of outputs and strategies.

This learning task classification has two immediate instructional affordances. First, in terms of scope, it can accommodate a wide variety of learning outputs (products) and outcomes (processes). Second, the model is meant to be neutral and therefore flexible concerning the recruitment of instructional approaches in teaching and learning. For example, while it is possible to learn facts and routines through whole-class instruction and individualised practice, the achievement of multiple outputs and outcomes through multiple strategies might favour group-based inquiry and joint decision making because they are the most open. Nevertheless, if we make wisdom an outcome of learning to think critically then there is an affinity with tasks of all kinds so long as they feature *explanation* as a component of the work done.

Explanation

According to renowned curriculum designers Grant Wiggins and Jay McTighe (2005), explanation is a key facet of understanding where "sophisticated and apt theories, and illustrations, provide knowledgeable and justified accounts of events, actions and ideas" (p. 85). For example, a student who can explain why steam, water and ice are the same chemical substance has a better understanding of H_2O than a counterpart who cannot. In addition, and crucially as far as the generation of wisdom is concerned, explanation allows for demonstrations of understanding by connecting events and thinking about why they happened

from a particular critical standpoint. Once this is done, we have a basis for generating insights about what is apt and appropriate action under specific circumstances.

Potentially, from curriculum and task design perspectives, there is a vast store of material for us as teachers and learners to explore and explain (i.e., understand). For example, in October 2010, the world witnessed the rescue of thirty-three men who had been trapped half a mile inside the San José mine in the Atacama Desert, Chile, for over two months. The disaster began on a normal day shift around noon. Miners excavating deep underground for precious metals started feeling vibrations. Suddenly, there was a massive explosion and the mine shafts were filled with thick dust. When the dust settled, the men could see that an immense rock had broken off a mountain and penetrated the layers of the mine destroying everything around and below it. Thinking and planning quickly, engineers designed and constructed an escape tunnel into which they repeatedly lowered and raised a single-person capsule using a giant crane over several hours. Incredibly, none of the trapped men or their family members waiting above ground in a makeshift area called ‘Camp Hope’ completely succumbed to despair. This was the case despite the fact that for over seventeen days before the drill finally broke through to the ‘refuge’ where the men were gathered, no one knew if they were alive or not.

My line of argument is that the Chilean mine rescue is typical of thousands of real-life stories in that it invites curiosity and exploration concerning the circumstances before, during and after the events that took place. For example, from a curriculum perspective, we could investigate what happened (Where were the miners? How were they rescued?) and write a factual recount in an language class. Alternatively, we could study Chilean geography and geology to find out what might have caused the rock to fall from the mountain. In Economics, we could explore world trade in precious metals and attempt to justify mining as a human enterprise involving high risk and low wages. Or we could look at the engineering,

mathematics and physics involved in drilling a half mile hole into the ground. What would be the optimal angle and direction? How was the capsule lowered into the ground so far without stopping? What kind of forces were involved and how can they be calculated?

Basically, when we ask questions about an event or phenomenon we can get to the root of an issue and we are then able to focus on the development of enacted solutions to it (Wrobel, 2015) that potentially have wisdom and social significance as outcomes.

For example, researchers have argued there are lessons for business executives to learn about leadership from the Chilean mine rescue. According to Rashid, Edmondson, and Leonard (2013) the successful example of André Sougarret, the chief of the rescue operation, is an exemplary case study in how to lead in situations where there are high stakes, multiple risks and uncertainties, and intense time pressure. Seemingly, Sougarret was faced with competing and conflicting demands: should he be directive and take command of the situation himself or enable and empower others to take action through innovation and experimentation? In the end, he decided to do *both* in order to overcome the extreme odds. The approach he adopted involved three tasks: (a) instilling hope that the trapped miners would be located but at the same time stressing that it would be extremely difficult (given the depth of the mine and the unstable ground) and they might not survive, (b) setting clear boundaries about who was involved in the rescue (only experts engineers with specialist equipment and geologists with knowledge of the location were allowed access to the rescue site), and (c) leading while allowing experimentation.

In this last case, Sougarret employed three separate drilling techniques to see which one would reach the trapped men first. He creatively defied logical thinking by letting the engineers make mistakes in their drilling but on the strict basis that there was constant monitoring of progress, and instant recovery and correction as necessary. As knowledge and experience quickly combined, a solution was found (from a number of alternatives) that was

apt for the purposes at hand (i.e., find and rescue the men if possible). Arguably, we can explain Sougarret's actions by showing that he acted wisely in alternating his leadership styles in response to the multi-faceted crisis he faced.

In sum, I suggest that when learners can demonstrate their understanding of world events via inquiry, they have a foundation and method for asking questions and providing explanations about their *own* situations and circumstances that can eventually lead to the generation of wisdom based on and around discussion and dialogue.

One concern teachers might have with this methodology is that student questioning is time-consuming and can lead to much off-topic, misdirected chatter. However, Marc Prensky (2010) roundly dismisses this teachers' myth. He argues that when questions are well-chosen and handled appropriately in classrooms, the same amount of curriculum content can be covered but with additional results (e.g., engagement and knowledge construction).

However, as curriculum designers and teachers, we need to know that inquiry or question-based approaches to instruction and learning are not instant solutions. Rather, inquiry, as a form of talk for learning, requires sustained and directed effort so that it becomes an intentional and regularly occurring feature of classroom interactions (See Alexander, 2008; Mercer, 2008). Mercer (2008) argues how important and necessary it is for students to learn questioning techniques and forms of classroom interaction where turn-taking, negotiation and rebuttal lead to discussion and knowledge generation. But this is a long, time-intensive pursuit.

Conclusion

In this short article I have attempted to outline a possible way of combining critical thinking with curriculum coverage. The central idea involves positioning wisdom, defined as the quality of having the experience, knowledge and insight to think and act aptly in a specific context for a particular purpose, as a curricula outcome with the potential for learners

to make meanings that have personal and social significance. My argument has been that critical thinking need not be an abstract concept. Rather, the quest for wisdom can be a unique means of providing an authentic context and a practical purpose for critical thinking that is driven by inquiry and underpinned by explanation as a way of demonstrating practical knowledge and understanding. The task ahead is for curriculum designers and subject-based teachers to intentionally design and enact learning tasks that incorporate wisdom as an outcome. As I believe this is a new idea, I am particularly interested in seeing examples of how this can be done in various teaching and learning contexts.

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